Quarry Problem

Parameters

Truck indices (*j*): 0 = large truck, 1 = small truck

Shovel indices (*i*): Shovels numbered 0, 1, ..., *n - 1*

$\{t_{L_j}\}$ = Load time for truck of size *j* (*j* = 0, 1)

$\{t_{C_j}\}$ = Crush time for truck of size *j* (*j* = 0, 1)

t_{C_j} = travel time from shovel to crusher for truck of type *j* (*j* = 0, 1)

t_{S_j} = travel time from crusher to shovel for truck of type *j* (*j* = 0, 1)

k_j = # shovels of type *j* (*j* = 0,1).

State Variables

$s_q[i]$ = fifo container of trucks waiting in queue at shovel *i*. The contents of the queue are the index of the truck sizes (0 or 1).

S_i = Number of available shovels at shovel *i*.

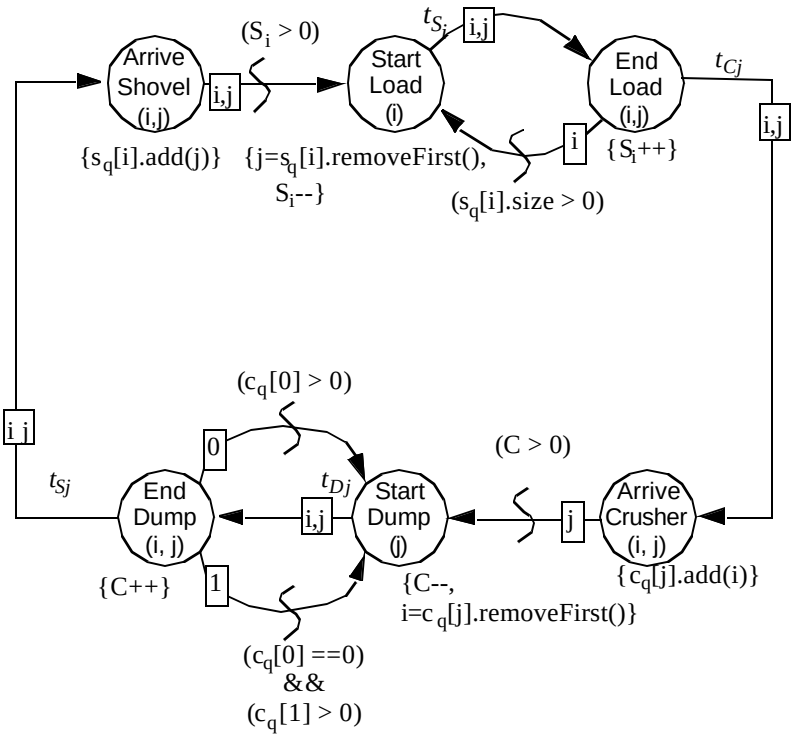
$c_q[j]$ = fifo container of trucks of type *j* waiting at crusher. The contents are the shovel index for that truck.

C = Number of available crushers (0 or 1).

Initial Values

Containers are all empty; *C*=1, S_i = 1 for *i*=0, 1, *n* - 1. There should be an Arrive Shovel event scheduled on the event list by the Run event for each truck at each shovel.

Event Graph



Initialization